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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,003	09/25/2001	Giuseppe Scala	15280-3862US	6807

7590 01/22/2003

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EXAMINER
STUCKER, JEFFREY J

ART UNIT	PAPER NUMBER
1648	9

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	Examiner	Group Art Unit	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

P ri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☑ Responsive to communication(s) filed on 12/18/03.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☑ Claim(s) 1-23 is/are pending in the application.

Of the above claim(s) 3-6, 8, 9, + 11-23 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 1, 2, 7, + 10 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☑ Notice of Reference(s) Cited, PTO-892

☑ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notic of Informal Patent Application, PTO-152

☐ Other _____

Office Acti n Summary

Applicant's election with traverse of Group I, SEQ ID NO: 1, in Paper No. 8 is acknowledged. The traversal is on the grounds that a search of the claims in the groups would not be an undue burden because the phagotopes and methods of using peptides can be examined together with claims drawn to the peptides because, the argument goes, a search of the sequences would identify art related to phagotopes and the use of the peptides. This is not found persuasive because the search of a given peptide does uncover related phagotopes nor does it provide a thorough search of the uses of a peptide. Applicant is reminded that rejoinder of the groups is possible at a later date if the product is eventually found to be patentable. See the Restriction Requirement for a full discussion of this.

The requirement is still deemed proper and is therefore made FINAL.

Claims 11-23 are withdrawn from consideration as being directed to non-elected inventions. Claims 3-5, 8, and 9 are withdrawn from consideration because they lack the elected invention. Claims 1, 2, 7, and 10 are examined and rejected.

Claims 1 and 6 is objected to for containing non-elected peptides.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 lacks an antecedent basis for "vaccine" as claim 5 is directed to an antigenic peptide. For the purposes of examination, the claim will be read as if it were dependant upon claim 6 which is directed to a vaccine.

In claim 10, it is not clear what is meant by "does not give rise to HIV-1 specific antibodies to more than twelve other antigenic determinants on HIV-1". It is not apparent that this further limits the claimed invention as this is a quality of the antigenic peptide.

35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1, 2, 7, and 10 are rejected under 35 U.S.C. § 101 because the invention as disclosed is inoperative and therefore lacks patentable utility.

The invention is directed to a vaccine composition for protecting against HIV-1 which is a pharmaceutical utility for these compounds in humans.

While the specification does contain statements regarding the use of the invention as a vaccine, the specification fails to teach, nor does it describe such use. The difficulties inherent to development of an HIV-1 vaccine are well known. For the sake of clarity, some of those problems will be outlined here:

1)the extensive genomic diversity associated with the HIV-1 retrovirus, due in large part to error prone reverse transcription of its single-stranded RNA genome,

2)the fact that the modes of viral transmission include virus-infected mononuclear cells, which pass the infecting virus to other cells in a covert form (cell to cell transmission), as well as via free virus transmission,

3)the existence of latent forms of the virus (i.e., beyond the blood-brain barrier),

5)the complexity and variation of the elaboration of the disease and,

6)the property of some portions of HIV-1 proteins or peptides to actually cause immunosuppression or other detrimental consequences.

The existence of these obstacles prevents one of ordinary skill in the art from accepting any vaccine or immunization treatment or any therapeutic regimen on its face. In order to provide proof of utility with regard to drugs and their uses, either clinical or *in vivo* or *in vitro* data, or a combination of these can be used. However, the data must be such as to convince one of ordinary skill in the art that the proposed utility is sufficiently established. See *in re Irons*, 340 F.2d 924, 144 USPQ 351 (CCPA 1965), *Ex parte Krepelka*, 231 USPQ 746 (PTO Bd. Pat. App & Inter. 1986) and *Ex parte Chwang*, 231 USPQ 751 (PTO Bd. Pat. App & Inter. 1986).

In regards to claim 10, there is no description of SEQ ID NO: 1 having the claimed characteristics.

Therefore, the instantly claimed invention lacks an adequate written description.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it

> is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, and 7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an antigenic composition, does not reasonably provide enablement for a vaccine which protects against HIV-1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The instant invention is drawn to a vaccine composition comprising SEQ ID NO: 1 but specification does not sufficiently support the full scope of the claimed vaccine. The term "vaccine", by definition, implies a preparation intended for active immunological prophylaxis; in deed, the instant specification at page 10 defines it as such. Although nearly any protein when inoculated can cause an immune reaction, the prophylactic nature of this reaction is not guaranteed and has to be experimentally determined. Prophylaxis is defined as the prevention of disease or of a process that can lead to disease. For example, the *Illustrated Dictionary of Immunology* defines vaccine as a composition that stimulates protective antibodies and T cell immunity and induces active immunity. Paul in *Fundamental Immunology* teaches that vaccines were developed primarily as a prophylactic measure to prevent

disease. This is achieved by use of an antigenic agent to actively stimulate the immunological mechanism, or the administration of chemicals or drugs to members of a community to reduce the number of carriers of a disease and to prevent others from contracting the disease. Testing protocols are designed to test the efficacy of the vaccines which include challenge trials or natural exposure to the disease agent in an endemic area. Further, he teaches that there is not always a correlation between seroconversion and protection from disease. given the teachings in the art, it is clear that a compound that merely induces an immune response is not sufficient but must be protective to qualify as a vaccine. See at the top of page 1312: "[T]here was not always a correlation between seroconversion and protection from disease...."

The ability of a vaccine to raise a protective immune response depends on the structure of the protein epitopes. Paul teaches that to determine the immunogenicity of certain regions of a protein, knowledge of the three dimensional structure of the protein is required to determine which polypeptides in a given protein would be accessible on the surface of the protein in order for the putative antigenic determinant to be bound by the antibody. In addition, Paul states that mobility of the putative antigenic determinant within the native protein structure is also a determining factor for the binding of the antigenic determinant to an

antibody. Paul points out (page 250, lines 4-8) that "Measurement of the mobility in the native protein is largely dependent on the availability of a high resolution crystal structure, so its applicability is limited to only a small subset of proteins." Riffkin et al. (*Gene*, 1995) teaches that a single amino acid change can alter the structure of the protein dramatically. Abaza et al. (*J. of Protein Chemistry*, 1992) teaches that mutations outside of the antigenic epitope exert an effect on the structure of the epitope. Because the structure of the protein determines its antigenicity and thereby its function as a vaccine, the structure cannot be predicted. In regards to the factors cited in the lack of utility rejection, applicant's specification does not address these factors and does not disclose that the instant invention has overcome these problems.

Given the uncertainty in the vaccine art as demonstrated by the references and the lack of working examples in the instant specification, the instant application is not enabled for vaccines which protect against HIV-1.

The closest prior art of record is Wang (WO 99/66957) which teaches SEQ ID NO: 130 which is the same as instant SEQ ID NO: 1 without the flanking "X"'s. It also discloses SEQ ID NOs: 136 and 137 that are equivalent to instant SEQ ID NO: 1 with one "X" but

not both. Therefore, the reference is not applied as art because the closest peptides do not have flanking regions on both ends and the document does not appear to suggest the addition of both flanking regions.

No claims are allowed.

Papers related this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989).

The Group 1600 Fax numbers are: (703) 308-4242 and (703) 305-3014.

Unofficial communications may be faxed to: (703) 308-4426.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Stucker whose telephone number is (703) 308-4237. The examiner can normally be reached Monday to Thursday from 7:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached on (703) 308-4027.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Jeffrey Stucker

JEFFREY STUCKER
PRIMARY EXAMINER